CLAIM AMENDMENTS

Claim Amendment Summary

Claims pending

- Before this Amendment: Claims 19-29.

- After this Amendment: Claims 19-29

Non-Elected, Canceled, or Withdrawn claims: 1-18

Amended claims: 19-29

New claims: None

Claims:

1-18 (Canceled).

19.   (Currently Amended) A method of minimizing latency for streaming time-varying multimedia content, the method comprising:

constructing an encoded bit stream for the <u>multimedia</u> content, the encoded bit stream having<u>:</u>

an initial portion<u> encoded at a bit rate less than a transmission rate and</u> represented with a low resolution encoding<u>;</u> and

Serial No.: 10/658,898
Atty Docket No.: MS1-0845USC1
Atty/Agent: Beatrice L. Koempel-Thomas
RESPONSE TO NON-FINAL OFFICE ACTION

5

lee&hayes   The Business of IP™
www.leehayes.com   509.324.9256

a subsequent portion <u>encoded at a bit rate equal to the transmission rate and</u> represented with an encoding having a higher resolution than the low resolution encoding; and

transmitting the encoded bit stream to a client buffer so that the client buffer receives the initial portion faster than the initial portion is removed from the client buffer during real-time playback of the <u>multimedia</u> content;

wherein transmitting the initial portion faster than a real-time playback rate reduces the latency due to buffering to near zero.

20.   **(Currently Amended)** The method of minimizing latency as claimed in claim [[1]] <u>19</u>, wherein ~~the act of~~ constructing an encoded bit stream is performed by an encoder having a buffer that starts out non-empty.

21.   **(Currently Amended)** The method of minimizing latency as claimed in claim [[1]] <u>19</u>, wherein ~~the act of~~ constructing an encoded bit stream ~~is performed by~~ <u>comprises</u> reducing a number of enhancement layers in an embedded bit stream to produce the initial portion of the <u>multimedia</u> content.

Serial No.: 10/658,898   6
Atty Docket No.: MS1-0845USC1
Atty/Agent: Beatrice L. Koempel-Thomas
RESPONSE TO NON-FINAL OFFICE ACTION

lee&hayes   The Business of IP™
www.leehayes.com   509 324 9256

22.   (Currently Amended) The method of minimizing latency as claimed in claim [[1]] 19, wherein the act of constructing an encoded bit stream is performed by comprises splicing together one or more low resolution encodings for the initial portion of the multimedia content with a higher resolution encoding for the subsequent portion of the multimedia content.

23.   (Currently Amended) A computer system for receiving and playing back multimedia datacontent, the computerized computer system comprising:

a buffer;

a processor;

a memory operatively coupled to the processor; and

an application executed in the processor from the memory which enables the system to:

receive multimedia data over a network wherein the multimedia data is received as an encoded bit stream having an initial portion and a subsequent portion so that the buffer receives the initial portion faster than the initial portion is removed from the buffer during real-time playback of the multimedia data;

present in real-time the initial portion of the encoded bit stream;

present in real-time the subsequent portion of the encoded bit stream;

continuing to receive the initial portion of the encoded bit stream until the buffer of the computer system contains enough multimedia data to prevent

Serial No.: 10/658,898   7
Atty Docket No.: MS1-0845USC1
Atty/Agent: Beatrice L. Koempel-Thomas
RESPONSE TO NON-FINAL OFFICE ACTION

lee&hayes   The Business of IP™
www.leehayes.com   509 324.9256

underflow or overflow while presenting the subsequent portion of the encoded bit stream; and

stopping reception of the initial portion of the encoded bit stream and beginning reception of the subsequent portion when the buffer of the computer system contains enough multimedia data to prevent underflow or overflow while presenting the subsequent portion of the encoded bit stream.

24.   **(Currently Amended)** A computer readable medium having instructions stored thereon for causing a computer to perform a method of minimizing latency for streaming time-varying multimedia content, the method comprising:

constructing an encoded bit stream for the multimedia content, the encoded bit stream having:

an initial portion encoded at a bit rate less than a transmission rate and represented with a low resolution encoding; and

a subsequent portion encoded at a bit rate equal to the transmission rate and represented with an encoding having a higher resolution than the low resolution encoding; and

transmitting the encoded bit stream to a client buffer so that the client buffer receives the initial portion faster than the initial portion is removed from the client buffer during real-time playback of the multimedia content to permit beginning playback of the initial portion without significant buffering.

Serial No.: 10/658,898   8
Atty Docket No.: MS1-0845USC1
Atty/Agent: Beatrice L. Koempel-Thomas
RESPONSE TO NON-FINAL OFFICE ACTION

lee&hayes   The Business of IP™
www.leehayes.com   509.324.9256

25.   **(Currently Amended)** The computer readable medium of claim [[22]] 24, wherein ~~the act of~~ constructing an encoded bit stream is performed by an encoder having a buffer that starts out non-empty.

26.   **(Currently Amended)** The computer readable medium of claim [[22]] 24, wherein ~~the act of~~ constructing an encoded bit stream ~~is performed by~~ comprises reducing a number of enhancement layers in an embedded bit stream to produce the initial portion of the multimedia content.

27.   **(Currently Amended)** The computer readable medium of claim [[22]] 24, wherein ~~the act of~~ constructing an encoded bit stream ~~performed by~~ comprises splicing together one or more low resolution encodings for the initial portion of the multimedia content with a normal resolution encoding for the subsequent portion of the multimedia content.

28.   **(Currently Amended)** A computer readable medium having instructions stored thereon for causing a computer to perform a method of delivering time-varying multimedia data~~content~~, the method comprising:

an application for execution in a processor to

delivering multimedia data over a network to a client buffer by:

Serial No.: 10/658,898   9
Atty Docket No.: MS1-0945USCI
Atty/Agent: Beatrice L. Koempel-Thomas
RESPONSE TO NON-FINAL OFFICE ACTION

lee&hayes   The Business of IP™
www.leehayes.com   509.324.9256

delivering an initial portion of an encoded bit stream, wherein the multimedia data is transmitted as an encoded bit stream having an initial portion is encoded at a bit rate less than a transmission rate; and

delivering a subsequent portion of the encoded bit stream, wherein the subsequent portion is encoded at a bit rate equal to the transmission rate, so that the client buffer receives the initial portion faster than the initial portion is removed from the client buffer during real-time playback of the multimedia data content;

stopping the delivering of the initial portion of the encoded bit stream and starting the delivering of the subsequent portion when the buffer of the client contains enough multimedia data to prevent underflow or overflow while presenting the subsequent portion of the encoded bit stream.

29.   **(Currently Amended)** The computer readable medium of claim [[26]] 29, wherein the application method further comprises constructing constructs the encoded bit stream having the initial portion represented with a low resolution encoding and the subsequent portion represented with an encoding having a higher resolution than the low resolution encoding.

Serial No.: 10/658,898   10
Atty Docket No.: MS1-0845USC1
Atty/Agent: Beatrice L. Koempel-Thomas
RESPONSE TO NON-FINAL OFFICE ACTION

lee&hayes   The Business of IP™
www.leehayes.com   509 324.9256